

POSTPARTUM WEIGHT RETENTION IN WOMEN ASSISTED IN THE PUBLIC HEALTH SERVICE: COHORT STUDY

RETENÇÃO DE PESO PÓS-PARTO EM MULHERES ASSISTIDAS NO SERVIÇO PÚBLICO DE SAÚDE: ESTUDO DE COORTE

RETENCIÓN DE PESO POSPARTO EN MUJERES ASISTIDAS EN EL SERVICIO DE SALUD PÚBLICA: ESTUDIO DE COHORTE

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Objective: to analyze postpartum weight retention in women assisted in the public health service in a municipality in southern Brazil. **Method:** cohort study conducted with 85 puerperal women. Socioeconomic, obstetric, anthropometric data, eating habits, physical activity, breastfeeding and emotional factors were collected through interviews in two moments: in the hospital, in the immediate puerperium; and at home, six months after delivery. Descriptive and inferential statistics were used in the analysis. **Results:** the incidence of postpartum weight retention greater than 1 kg was 54.1%, associated with excessive gestational weight gain (68.4%), eutrophic nutritional status/low weight at the beginning of pregnancy (65.8%) and overweight six months postpartum (61.8%). Women who did not breastfeed exclusively up to six months retained more weight. The prevalence of body dissatisfaction was high (82.4%). **Conclusion:** the risk factors for postpartum weight retention were pre-gestational eutrophic nutritional status and excessive weight gain during pregnancy.

Descriptors: Postpartum Period. Gestational Weight Gain. Body Weight Changes. Women's Health. Unified Health System. Nursing.

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Objetivo: analisar a retenção de peso pós-parto em mulheres assistidas no serviço público de saúde em um município do Sul do Brasil. Método: estudo de coorte realizado com 85 puérperas. Dados socioeconômicos, obstétricos, antropométricos, hábitos alimentares, atividade física, amamentação e fatores emocionais foram coletados mediante entrevista em dois momentos: no hospital, no puerpério imediato; e no domicílio, seis meses após o parto. Na análise, utilizou-se estatística descritiva e inferencial. Resultados: a incidência da retenção de peso pós-parto maior que 1 kg foi de 54,1%, associada ao ganho de peso gestacional excessivo (68,4%), estado nutricional eutrófico/baixo peso no início da gestação (65,8%) e excesso de peso seis meses pós-parto (61,8%). Mulheres que não amamentaram exclusivamente até seis meses retiveram mais peso. A prevalência de insatisfação corporal foi alta (82,4%). Conclusão: os fatores de risco para retenção de peso pós-parto foram estado nutricional eutrófico pré-gestacional e ganho de peso excessivo na gestação.

Descritores: Período Pós-parto. Ganho de Peso na Gestação. Alterações do Peso Corporal. Saúde da Mulher. Sistema Único de Saúde. Enfermagem.

Objetivo: analizar la retención de peso posparto en mujeres atendidas en el servicio público de salud en un municipio del sur de Brasil. Método: estudio de cohorte realizado con 85 puérperas. Los datos socioeconómicos, obstétricos, antropométricos, hábitos alimenticios, actividad física, lactancia materna y factores emocionales fueron recolectados a través de entrevistas en dos momentos: en el hospital, en el puerperio inmediato; y en casa, seis meses después del parto. En el análisis se utilizó estadística descriptiva e inferencial. Resultados: la incidencia de retención de peso posparto mayor de 1 kg fue de 54,1%, asociada a aumento excesivo de peso gestacional (68,4%), estado nutricional eutrófico/bajo peso al inicio del embarazo (65,8%) y sobrepeso seis meses postparto (61,8%). Las mujeres que no amamantaron exclusivamente hasta seis meses retuvieron más peso. La prevalencia de insatisfacción corporal fue alta (82,4%). Conclusión: los factores de riesgo para la retención de peso posparto fueron el estado nutricional eutrófico pre-gestacional y el aumento de peso excesivo durante el embarazo.

Descriptorios: Periodo Posparto. Ganancia de Peso Gestacional. Cambios en el Peso Corporal. Salud de la Mujer. Sistema Único de Salud. Enfermería.

Introduction

Postpartum weight retention (PPWR) refers to the weight acquired during pregnancy and that is maintained after delivery. It is an important risk factor for the development of obesity in women⁽¹⁾. Maternal overweight increases the chances of metabolic syndrome and the transgenerational risk of maternal-childhood obesity⁽²⁾.

There is no consensus in the literature about the ideal cutoff point for categorization of PPWR, being very dependent on follow-up time. A systematic review, with 20 studies published between 2000 and 2013, found a variation of 19.2% of PPWR over 7.5 kg at nine months, and up to 61.3% of PPWR over 1 kg at six months after delivery⁽³⁾.

Excessive weight gain during pregnancy is the main predictor of PPWR⁽¹⁾, but the influence of socioeconomic and other factors, such as obstetric history, breastfeeding, stress, psychological aspects and lifestyle, is still investigated in order to better understand the phenomenon^(1,4).

Gestational weight gain (GWG) is already expected by both fetal growth and increased

maternal structures. During prenatal care, weight monitoring is recommended, with verification in all consultations⁽⁵⁾. However, a study conducted within the scope of the 15th regional health center in the state of Paraná, for example, showed the low frequency of recording the pregnant woman's weight⁽⁶⁾. In view of the importance of monitoring nutritional status during prenatal care, professionals need to take responsibility for the evaluation and guidance of pregnant women in relation to their nutritional status, assisting them integrally⁽⁷⁾.

The same should occur in relation to the postpartum period. Nevertheless, within the Scope of the Unified Health System (UHS), actions of health teams in the puerperium are almost exclusively destined to the care of the baby, through childcare consultations⁽⁸⁾. For women, only one consultation is provided at the end of the 40 days after delivery⁽⁵⁾. However, in the postpartum period, there should be a return to pre-gestational weight, and the main nursing intervention for this process to occur naturally is

the incentive to breastfeeding, because lactation, in addition to the benefits for the baby, can have a protective effect against PPWR⁽²⁾.

It is also worth mentioning that the acceptance of body changes to meet the needs of motherhood is not always an easy process, because the pressure on the body forms of women harms their mental health. Moreover, they need the support of health professionals and the family for the positive management of the body in the puerperium⁽⁹⁾.

Strategies for the care of puerperal women are challenging, because, in addition to overloading activities, changing role, tiredness and concern in general, they also need to take care of their babies, in order to guarantee them health and well-being. Behaviors aimed at women in this period usually do not have spontaneous demand. Therefore, when managing actions without considering such barriers, goals are not achieved. The performance of health professionals in the puerperal period, in order to promote the return to pre-gestational weight, to impact and decrease obesity rates in women, requires knowledge aligned with their social and health needs in this period of vulnerability.

There is still no consensus in the literature on the predictors of PPWR, because the studies present discordant conclusions. Thus, the reviews and meta-analyses indicate the need for further research in order to elucidate the theme^(1,3-4). Disagreements are generally related to the differences between the populations studied – the characteristics of each group under study, as well as the sociodemographic, cultural and economic variables selected. Therefore, regional studies that allow verifying how this phenomenon behaves before the profile of women are important. Therefore, the main question of this research was: Which characteristic influenced higher PPWR, considering a specific population, such as the one met in the public health system? The main hypotheses pre-established by the researchers were that PPWR would be related to the type of delivery and exclusive breastfeeding.

In view of the above, the objective of this study was to analyze postpartum weight retention

in women assisted in the public health service in a municipality in southern Brazil.

Method

A cohort study conducted with 85 puerperal women in the municipality of Maringá (PR), following the instructions of STROBE in its development.

The municipality of Maringá is the third most populous in the state of Paraná, headquarters of the 15th Regional Health, with an estimated population of 403,000 people and 85% coverage of Primary Care, which is composed, briefly, of 34 Basic Health Units (BHU) and 74 Family Health Strategy (FHS) teams. In 2013, with the implementation of the *Mãe Maringaense* Program, one of the results achieved was an improvement in the indicators of access to prenatal care, with an increase in the proportion of live births of mothers with seven or more consultations, which reached 83.9% in 2016⁽¹⁰⁾.

The calculation of the sample size considered the number of births of residents that occurred in the municipality in 2015 (3,004). Among these, those who were performed in the public service (1,711 – 58.9%). With this total number of births, a confidence level of 95%, error of 3%, and prevalence of 13% of PPWR over 5 kg after 12 months postpartum were considered⁽¹¹⁾, plus 20% for possible losses, which resulted in a minimum sample of 462 postpartum women.

The inclusion criteria previously established were: puerperal women with single gestation of living concepts and gestational age equal to or greater than 37 weeks. On the other, the exclusion criteria were: unable to inform or have no record on the pregnant woman's card of pre-gestational weight and at the end of pregnancy. In turn, the follow-up was considered: moving to another municipality (26); verbal manifestation of withdrawal from participation (11); non-location of the interviewee on the telephone numbers and addresses provided by them (154); incompatibility of time to perform the home visit, after at least five attempts (96); and delivery time below six months at the end of the period for data collection (90).

Data were collected from December 2017 to September 2019, in two moments: in the immediate postpartum period, after 12 hours, and six months later, due to the importance of exclusive breastfeeding during the first six months and its probable influence on maternal PPWR⁽¹²⁾.

For the constitution of the group to be studied, from December 2017 to September 2019, active searches were performed daily in the hospitals under study until the previously defined number was reached. At that moment, medical records were consulted to identify the puerperal women who met the inclusion criteria and for the collection of information, including the pregnant woman's card. Body weight was also verified in the electronic scale available in the sector. The interview was conducted with those who agreed to participate in the study.

Six months after delivery, a home visit was conducted with interviews, addressing life habits, emotional aspects and breastfeeding during the first six months of life. Body weight was also verified on an electronic portable scale. It is emphasized that, due to the difficulties in scheduling home visits, 12 puerperal women were visited with a maximum delay of up to 60 days.

The dependent variable was PPWR, used both categorically (considered present when greater than 1 kg), and continuous (mean and standard deviation in kg), defined by the difference between pre-gestational weight and the measured in the home visit.

The independent and categorical variables were: socioeconomic characteristics (age group; marital status; paid work and economic classification according to the Brazilian Association of Companies and Research; obstetric (multiparous; previous cesarean section and type of current delivery); body mass index (BMI) in four moments ($\text{weight}/\text{height}^2$) – *weight before the 1st pregnancy* (weight recalled); *current pre-gestational weight* (the one referred to up to two months before conception or discovery of pregnancy, or, in cases where the woman did not remember, the weight noted on the prenatal card until the 14th week of gestation was

considered); *final gestational weight* (reported by the woman, considering measurement at least 30 days before the date of delivery or the weight noted on the pregnant woman's card for the last prenatal consultation provided it had occurred up to 30 days before the date of delivery); and *body weight six months after delivery* (measured at home visit). To classify nutritional status based on BMI values, overweight was considered when over 28.8 kg/m^2 at the end of pregnancy⁽⁵⁾. For the other moments, the value was 24.9 kg/m^2 .

Gestational weight gain (difference between weight at the end of pregnancy and pre-gestational weight) was considered excessive when greater than: 18 kg, for women who, before pregnancy, were classified as underweight; 16 kg, for eutrophic; 11.5 kg, for those with overweight; and 9 kg for obese women⁽¹³⁾.

Regarding life habits, diets were investigated based on three questions, two from Vigitel: weekly frequency of consumption of sweetened soft drink/artificial juice and weekly consumption of industrialized products; and eat fast. Regarding the practice of physical activity, the presence of sedentary lifestyle and report of some physical activity (PA) was investigated.

Regarding the characteristics of breastfeeding, the presence of exclusive breastfeeding (EBF) was investigated at six months of life; introduction of milk formula or milk before six months; and breastfeeding at night.

Finally, in relation to emotional aspects six months after delivery, three instruments were applied: Perceived stress scale, version with 14 items (PSS 14), whose total score ranges from 0 to 56 points⁽¹⁴⁾; Three dietary factors questionnaire (TFEQ-R21) with three domains: cognitive restriction (CR), emotional eating (EE) and food control (FC). The total score of each domain ranges from 0 to 100 points⁽¹⁵⁾; and Stunkard's figure scale, consisting of nine female designs, in which each figure is more voluminous than the previous one. It is used to measure body dissatisfaction, taking as a starting point the indication of the drawing in which the person recognizes herself and the indication of what she would like to have. The difference between

the two figures points to the intensity of body dissatisfaction⁽¹⁶⁾.

The descriptive and statistical analysis of the data was performed in the SPSS® software, considering $\alpha=5\%$. The p-value was determined using the Chi-square test. The means and standard deviation of the continuous variables and the percentages for categorical variables were also calculated.

The study was conducted according to national ethical standards for research with human beings. The project was approved by the Human Research Ethics Committee of the signatory institution (Certificate of Presentation of Ethical Appreciation n. 70317817.3.0000.0104/2017 and Opinion n. 2.180.586/2017). All participants signed the Informed Consent Form (ICF).

Results

A total of 85 women were interviewed after delivery. The mean time in months for home visits was 7.1 ± 1.4 months. PPWR greater than 1 kg was present in 46 (54.1%) interviewees; the majority who retained weight were 25 years or older (62.5%), married or stable union (55.1%), with paid work (61.3%), who had already undergone a previous cesarean section (55.9%) and performed cesarean section again (56.6%). PPWR also showed a statistically significant association with eutrophic nutritional status or low birth weight in the pre-gestational period (65.8%; $p=0.05$); with excess weight at six months after delivery (61.8%; $p=0.05$), and with excessive gestational weight gain (68.4%; $p=0.02$) (Table 1).

Table 1 – Profile of women according to postpartum weight retention after six months of childbirth. Maringá, Paraná, Brazil – 2019. (N=85) (continued)

Variables	Postpartum weight retention						
	Yes	%	No	%	Total	%	p-value(1)
Age group (in years)							
Below 24	26	49.1	27	50.9	53	62.4	0.23
25 or more	20	62.5	12	37.5	32	37.6	
Marital status							
Single/widow/separate	3	42.9	4	57.1	7	8.2	0.53
Stable marriage/married	43	55.1	35	44.9	78	91.8	
Paid work							
Yes	19	61.3	12	38.7	31	36.5	0.32
No	27	50.0	27	50.0	54	63.5	
Economic class C,D,E(2)							
Yes	32	54.2	27	45.8	59	69.4	0.97
No	14	53.8	12	46.2	26	30.6	
Multiparous							
Yes	27	54.0	23	46.0	50	58.8	0.98
No	19	54.3	16	45.7	35	41.2	
Previous cesarean section(3)							
Yes	19	55.9	15	44.1	34	68.0	0.70
No	8	50.0	8	50.0	16	32.0	
Current delivery							
Vaginal	16	50.0	16	50.0	32	37.6	0.55
Cesarean section	30	56.6	23	43.4	53	62.4	
Nutritional status before the first gestation							
Overweight	11	55.0	9	45.0	20	23.5	0.93
Eutrophic/below weight	35	53.8	30	46.2	65	76.5	
Pre-gestational nutritional status							
Overweight	21	44.7	26	55.3	47	55.3	0.05
Eutrophic/below weight	25	65.8	13	34.2	38	44.7	
Excessive gestational weight gain							
Yes	26	68.4	12	31.6	38	44.7	0.02
No	20	42.6	27	57.4	47	55.3	

Table 1 – Profile of women according to postpartum weight retention after six months of childbirth. Maringá, Paraná, Brazil – 2019. (N=85) (conclusion)

Variables	Postpartum weight retention						
	Yes	%	No	%	Total	%	p-value(1)
Final gestational nutritional status							
Overweight	29	52.7	26	47.3	55	64.7	0.73
Eutrophic/below weight	17	56.7	13	43.3	30	35.3	
Nutritional status after six months of childbirth							
Overweight	34	61.8	21	38.2	55	64.7	0.05
Eutrophic/below weight	12	40.0	18	60.0	30	35.3	

Source: Created by the authors.

(1) Chi-square test.

(2) Mid-house income below R \$ 2,705, according to the economic classification of the Brazilian Association of Companies and Research (ABEP).

(3) n=50.

Some habits and behaviors during postpartum did not present a statistically significant association with PPWR. However, 30 (60.0%) women who introduced formula or

cow's milk before six months and 21 (61.8%) who did not breastfeed at night retained more weight (Table 2).

Table 2 – Women's habits and behaviors according to postpartum weight retention after six months of childbirth. Maringá, Paraná, Brazil – 2019. (N=85)

Variables	Postpartum weight retention						
	Yes	%	No	%	Total	%	p-value(1)
Eating fast							
Yes	25	58.1	18	41.9	43	50.6	0.45
No	21	50.0	21	50.0	42	49.4	
Weekly frequency of refrigerant consumption/sweetened artificial juice							
3x or more	24	53.3	21	46.7	45	52.9	0.88
2x or less	22	55.0	18	45.0	40	47.1	
Weekly Frequency of Consumer Industrialized Products							
3x or more	35	55.6	28	44.4	63	74.1	0.65
2x or less	11	50.0	11	50.0	22	25.9	
Sedentary lifestyle							
Yes	35	51.5	33	48.5	68	80.0	0.33
No	11	64.7	6	35.3	17	20.0	
Physical activity							
Yes	4	57.1	3	42.9	7	8.2	0.87
No	42	53.8	36	46.2	78	91.8	
Exclusive breastfeeding							
Yes	9	47.4	10	52.6	19	22.4	0.50
No	37	56.1	29	43.9	66	77.6	
Introduced Formula or Milk							
Yes	30	60.0	20	40.0	50	58.8	0.19
No	16	45.7	19	54.3	35	41.2	
Breastfeeding at night							
Yes	25	49.0	26	51.0	51	60.0	0.25
No	21	61.8	13	38.2	34	40.0	

Source: Created by the authors.

(1) Chi-square test.

Concerning the mean anthropometric values of the sample, BMI was classified as overweight from the pre-gestational period to six months after delivery. The mean gestational weight gain

was higher than that classified as adequate for pre-gestational sample overweight BMI and the mean PPWR was 2.2 (± 6.5) (Table 3).

Table 3 – Mean of the anthropometric variables of women. Maringá, Paraná, Brazil – 2019

Anthropometric variables	Mean \pm standard deviation
Body Mass Index Before First Gestation	23.2 \pm 4.5 kg/m ²
Pre-gestational body mass index	26.1 \pm 5.4 kg/m ²
Final Gestational Body Mass Index	31.0 \pm 5.2 kg/m ²
Immediate postpartum body mass index	29.7 \pm 5.2 kg/m ²
Body mass index after six months	27.0 \pm 5.6 kg/m ²
Gestational weight gain	12.7 \pm 5.4 kg
Immediate postpartum weight loss	3.4 \pm 2.2 kg
Postpartum weight retention after six months	2.2 \pm 6.5 kg

Source: Created by the authors.

Regarding emotional aspects, no statistically significant relationship was observed with PPWR in bivariate analysis (data not presented in tables), but the mean scores obtained were higher than the mean values individually proposed by the

scales used (Table 4). Moreover, 70 (82.4%) women reported dissatisfaction with their bodies and 61 (71.8%) desired a slimmer body than the present one.

Table 4 – Mean scale scores related to the emotional aspects of women six months after delivery. Maringá, Paraná, Brazil – 2019

Emotional scores	Score	Mean \pm standard deviation
Perceived stress	0 - 56	29.6 \pm 5.3
Cognitive restriction	0 - 100	53.5 \pm 10.1
Emotional feeding	0 - 100	65.0 \pm 21.3
Uncontrolled eating	0 - 100	57.7 \pm 11.7

Source: Created by the authors.

Discussion

The mean PPWR of the women in the study (2.2 kg) was higher than that found in a population-based study with users of public and private services, conducted in Botucatu (SP)⁽¹⁷⁾, six months after delivery (1.8 kg). The divergences between the means of PPWR in Brazilian studies are related to the different sample profiles analyzed, hindering making differences between the values found⁽¹⁷⁾.

Over half of the women had PPWR. Moreover, according to the mean pre-gestational BMI that indicated overweight, the mean weight gain, according to the parameters of the Institute of Medicine (IOM), which should be between 7 and 11.5 kg⁽¹³⁾, was higher.

Thus, excessive gestational weight gain was associated with PPWR, which corroborates the literature. A cohort study showed that weight retention was higher in women who had low weight before pregnancy. Those with excessive GWG were more likely to maintain postpartum weight and more likely to retain at least 5 kg compared to women with adequate GWG⁽¹⁾. A study with 4,102 women from southern Brazil evaluated the relationship between GWG and PPWR and found a mean GWG of 12 kg and prevalence of excessive GWG of 33.5%. The mean PPWR greater than 3 months after delivery was 2.3 kg and, after 12 months, it was 1.4 kg⁽¹⁸⁾.

Another anthropometric data associated with PPWR was pre-gestational eutrophic nutritional status. However, there is still no consensus in the

literature regarding pre-gestational BMI being a predictor of PPWR⁽¹⁸⁾. A study conducted with African-American women did not observe an association between PPWR and pre-gestational BMI⁽¹⁹⁾. Likewise, the birth cohort conducted in Maranhão/Brazil also identified that the PPWR had no direct relationship with pre-gestational BMI, as it was influenced by other risk and protective factors, such as excessive GWG and breastfeeding⁽¹²⁾. In Washington (USA), a cohort was conducted investigating the PPWR, based on the difference between weight at the beginning of the second pregnancy and weight prior to the first gestation. It concluded that women with pre-gestational overweight were less likely to return to their initial weight, even when they had the appropriate GWG⁽²⁰⁾.

It is notable that, although in the present study there was no significant association between feeding characteristics in the postpartum period and PPWR, most participants had low economic power, reported fast eating and frequent use of industrialized products. This result corroborates the conclusion of a study that found that postpartum women fed according to availability and financial conditions, which can often hinder the consumption of fresh foods, such as fruits, vegetables, legumes and meats⁽²¹⁾. The demand for care for the baby and the lack of time for self-care⁽²²⁾ may also be the reasons for faster food choices, such as snacks and industrialized products.

It is important to remember that, in general, the follow-up of the health team in the puerperium prioritizes baby-centered care⁽⁸⁾, with little or no action focused on maternal nutritional status. Food orientation, for example, is directed, almost exclusively, to meet the baby's needs⁽²¹⁾, probably due to breastfeeding.

The characteristics of breastfeeding were also not significantly associated with PPWR, however, among the women who retained weight, most did not breastfeed exclusively at night and until the sixth month of the child's life. The relationship between breastfeeding and weight loss is not yet a consensus in the literature, as there is a complexity of factors involved⁽²⁾.

The birth cohort conducted in Maranhão indicated that the longer the duration of breastfeeding, the lower the PPWR. It also indicated that excessive GWG impaired the onset and maintenance of breastfeeding⁽¹²⁾. Thus, obese women were less likely to breastfeed, with late onset and shorter duration of breastfeeding, due to hormonal aspects, such as increased progesterone and leptin produced and/or stored in adipose tissue, which inhibited prolactin secretion and influenced milk ejection⁽²⁾. Another study also found that pre-gestational obesity and excessive GWG were associated with an increased risk of delayed lactogenesis⁽²³⁾.

Nevertheless, a meta-analysis that included 11 studies from five different countries (USA, Brazil, France, Georgia and Croatia) did not identify, a priori, a relationship between breastfeeding and weight loss in the postpartum period. However, when present, it was only observed more frequently in women who continued breastfeeding until 12 months postpartum. This fact led the authors to conclude that the differences observed in the results of the studies could be related to the intensity and duration of breastfeeding, with the study population (source, size, location, loss of follow-up), form of assessment of weight, PPWR, breastfeeding and statistical methods used. The difficulty in proving the role of breastfeeding in postpartum weight loss is also due to the effect of several known predictors, such as excessive GWG, pre-gestational weight, physical activity, lifestyle⁽⁴⁾ and eating habits.

Regarding the emotional aspects, although no significant association was evidenced with PPWR, the scores found were above the mean cutoff point proposed individually by the scales used. If we consider the profile of the women studied, the majority had high BMI from the pre-gestational period to the postpartum period and almost half of them had excessive GWG. Thus, in addition to the physical repercussions, overweight could also favor the occurrence of sadness, low self-esteem, impact on breastfeeding practice and on the mother and child bond, and also on negative body image⁽²⁴⁾.

In the present sample, the prevalence of body dissatisfaction was high, since most wanted a thinner body, pointing out two, three, four and even more figures prior to the one recognized in the present.

An integrative review that included studies published between 2014 and 2018, addressing psychological disorders in the puerperal period, concluded that concern and dissatisfaction with body image caused emotional changes. Furthermore, it pointed out that the changes and adaptations that occurred in the family and home context also worsened the vulnerability of women in the puerperal period⁽²⁵⁾.

In a scope review with articles published between 2014 and 2019, addressing the management of the body in the puerperium, the authors emphasized the increased concern about overweight in this period, which they believed was due to the cult of the perfect body of Western societies, provoking false expectations regarding the utopian body in the postpartum period⁽⁹⁾. They also pointed out that the desire to quickly recover the pre-pregnancy body harmed the mental health and well-being of women. In this sense, they reported that, in the United Kingdom, health teams tried to work on these issues, demonstrating that the changes in pregnancy were not negative and were part of the maternity process. They believed the importance of health professionals helping women to deal with it in a more natural way. This would reduce the pressure they suffered in the postpartum period, not only regarding weight, but also the occurrence of stretch marks and flabbiness⁽⁹⁾.

Dissatisfaction with body image can also impair breastfeeding. Weaning, in turn, can impair or hinder weight loss. Weaning may be due, among other factors, to the restlessness with the aspect of the breasts, low self-esteem, the intention to restore the body before pregnancy⁽⁹⁾ and even the desire to take some medication to help with weight loss. However, for fear of harming the baby, the woman preferred to stop feeding the baby.

It is noteworthy that the results of this study showed that the health team should be attentive

to the identification of women with excessive GWG and/or pre-gestational overweight, to implement strategies that favor weight loss without psychological distress, in a natural and physiological way. In this sense, it would be important for everyone to support and encourage exclusive breastfeeding up to six months and to maintain breastfeeding for up to two years; encourage the practice of physical activity, according to socioeconomic conditions and the availability of time; accompany and guide the choice of appropriate food; provide emotional support and promote the improvement of self-esteem.

Finally, it is important to highlight that BMI calculation is an effective technology for monitoring the nutritional status of the population and for directing health actions within the public service. It is easy to measure, simple and free of charge, and can be used by all health professionals, especially the nursing team, both in primary health care, as in the outpatient clinic, in emergency care services and in the obstetrics units of hospitals. Nevertheless, it is important to emphasize that many women were no longer included in the study due to lack of this information on the pregnant woman's card, either in relation to the beginning or in relation to the end of pregnancy.

One of the limitations of the study was the high loss of participants after the first stage, due to operational problems on the part of the researchers, such as incompatibility of time, unavailability of the puerperal woman to schedule the home visit, absence of financial assistance for travel, time spent on travel, due to the distance between the residences, in addition to restriction in the availability of the family-use vehicle. However, it is important to highlight that the profile of the women interviewed six months after delivery was similar to those interviewed in the immediate postpartum period, which minimizes the selection bias of the women followed during the research period. Another limitation of the research was to work with BMI or nutritional status, using the relationship between weight and height, but not measuring

the rate and distribution of fat in the body. In any case, the generalization of the results is valid, because the profile of the women in the study corresponded to that of a large part of the population. Moreover, even though health care is diverse in different Brazilian regions, many studies point to equal concerns with puerperal care.

The study brings relevant contributions to the area of women's health, since the investigation of the predictors of PPWR in women who had prenatal follow-up and delivery by the public health service strengthens public policies directed at this population. Moreover, it bases the action of nurses, who are active in all spheres of care to women in the pregnancy-puerperal cycle.

The study is important for nursing, because it points out weaknesses in the care of the puerperium, especially because it is basically baby-centered. In addition, it indicates the need, in the planning of care, that nurses consider the difficulties experienced by women to return to pre-gestational weight and the factors involved in this issue. This will certainly increase the possibility of more expanded care and close to real needs and focused on integrality.

Conclusion

In this study, the factors significantly associated with PPWR – pre-gestational or underweight nutritional status and excessive GWG – resulted in an immediate overweight postpartum nutritional status, which remained after six months of delivery.

Even though the mean weight retention was not high, weight loss in the six months postpartum was not able to reduce the mean BMI of the sample to the point of being equivalent to the mean pre-gestational BMI. This fact indicates the importance of monitoring GWG during prenatal consultations. Breastfeeding, even without statistical significance with PPWR in this study, should be encouraged by the health team, paying attention to the fact that its role is greater than just nourishing the infant. The emotional aspects in the puerperal period demonstrated the need for embracement by both family members

and the support network and actions of Primary Health Care teams.

Collaborations:

1 – conception, design, analysis and interpretation of data: Lorena Vicentine Coutinho Monteschio and Sonia Silva Marcon;

2 – writing of the article and relevant critical review of the intellectual content: Lorena Vicentine Coutinho Monteschio, Sonia Silva Marcon, Evelin Matilde Arcain Nass, Cátia Campaner Ferrari Bernardy, Áurea Christina de Paula Corrêa, Patrícia Chatalov Ferreira and Débora Cristina Arruda;

3 – final approval of the version to be published: Lorena Vicentine Coutinho Monteschio, Sonia Silva Marcon, Evelin Matilde Arcain Nass, Cátia Campaner Ferrari Bernardy, Áurea Christina de Paula Corrêa, Patrícia Chatalov Ferreira and Débora Cristina Arruda.

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